

21. (Newly Added) The LCD of claim 20, the common electrode is arranged between the adjacent pixel electrodes.

REMARKS

In response to the Office Action dated April 2, 2002, claims 1, 2, 3, 6, 7, 8 and 16 have been amended, and claims 17-21 have been newly added. Claims 1-21 are active in this application. The Office Action indicated that claims 11, 12, 14 and 15 are allowable if rewritten in independent form. Based on the above Amendments and the following Remarks, Applicants respectfully request that the Examiner reconsider the outstanding rejections and they be withdrawn.

Rejections Under 35 U.S.C. §102

In the Office Action, claims 1-8, 13 and 16 have been rejected under 35 U.S.C. §102(e) for being anticipated by U. S. Patent No. 6,295,043 issued to Hashimoto, *et al.* ("Hashimoto"). This rejection is respectfully traversed.

In this response, independent claims 1 and 6 have been amended for clarification purposes. Amended claim 1 recites "A method for driving a liquid crystal display ..., comprising steps of: dividing the plurality of pixels into a plurality of groups, each group comprising a plurality of pixels that are adjacent to each other; applying a common voltage to the common electrode; and *applying a data voltage of a positive polarity and a negative polarity with respect to the common voltage alternately to the plurality of groups per frame*, wherein the polarity of the data voltage applied to the pixels in the same group is the same."

It is respectfully submitted that Hashimoto fails to teach or suggest this claimed feature. The Examiner alleged that Fig. 2B of Hashimoto teaches applying a data voltage of a positive polarity and a negative polarity with respect to the common voltage alternatively to groups of a plurality of pixels. However, Fig. 2B of Hashimoto is directed to a *one hour per one field* (1H/1-field) inverting system, by which “the polarities of the image signals (R, G, B) are exchanged every 1H and one field and n frames” (column 9, lines 7-10) to prevent a display burning problem when a still image signal is inputted. Thus, Hashimoto fails to teach or suggest “applying a data voltage of a positive polarity and a negative polarity with respect to the common voltage alternately per each frame to the plurality of groups”, as recited in claim 1.

Furthermore, in the Office Action, the Examiner alleges that Fig. 2B and abstract of Hashimoto teach that a data voltage is inverted in unit of pixel group. Applicant’s careful review reaches to a contrary conclusion regarding Fig. 2B of the Hashimoto patent.

Referring to Fig. 2B, three pixels with same polarity are drawn at left side and right side, respectively. The polarity of pixels at left side is opposite to that of pixels at right side, and therefore, pixels at left side and pixels at right side may appear similar to the pixel group of the present invention. However, the left side and right side in Fig. 2B of Hashimoto represent a first field and a second field, respectively. Hashimoto mainly discloses an interlaced scan method, and one frame in the Hashimoto consists of the first field (odd field) and the second field (even field). (See generally col. 2, line 21 to col. 3, line 8 of Hashimoto) According to Fig. 2B, all pixel (three pixel) in the first row of the first field (left side) have positive polarity and all pixel (three pixel) in the first row of the second field (right side) have negative polarity. In other words, the number of pixels at left side and at right side in Fig. 2B, whether it is three or other numbers, merely exemplify all pixel in specific row of one field. It has nothing to do with the

pixel group of the present invention. Therefore, it is respectfully submitted that Hashimoto fails to teach or suggest that data voltage is inverted in a unit of pixel group.

Likewise, amended claim 6 recites “A liquid crystal display, comprising: ... the plurality of pixels being divided into a plurality of pixel groups, each pixel group comprising two or more pixels, wherein ... *polarities of the data voltage with respect to the common voltage are inverted in a unit of a pixel group per frame*”. As aforementioned, Hashimoto fails to teach or suggest inverting polarities of the data voltage in a unit of a pixel group per frame”.

Thus, Applicant respectfully submits that independent claims 1 and 6 are patentable over Hashimoto. Likewise, claims 2-5, 7, 8, 13 and 16, that are dependent from claims 1 and 6, would be also patentable over Hashimoto at least for the same reason. Accordingly, Applicants respectfully requests all the objections and rejections over claims 1-8, 13 and 16 be withdrawn.

Rejections Under 35 U.S.C. §103

In the Office Action, claims 9 and 10 have been rejected under 35 U.S.C. §103(a) for being unpatentable over Hashimoto. This rejection is respectfully traversed.

claims 9 and 10 are dependent from claim 6. As previously mentioned, claim 6 is believed to be patentable over Hashimoto. No secondary reference has been introduced to cure the deficiency from the teachings of Hashimoto. Thus, it is submitted that claims 9 and 10 are also patentable over Hashimoto at least for the same reason.

Accordingly, Applicants respectfully request that all the rejections and objections over claims 9 and 10 be withdrawn.

Other Matters

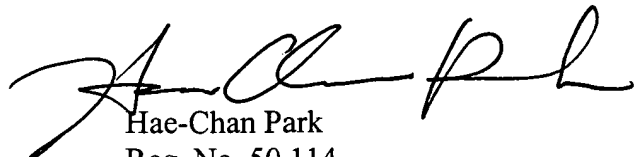
In this response, claims 2, 3, 7, 8 and 16 have been amended for clarification purposes, and claims 17-21 are newly added.

CONCLUSION

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicant believes that a full and complete response has been made to the outstanding Office Action and, as such, claims 1-16 are in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment is respectfully requested.

Respectfully submitted,


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APPENDIX

The “marked-up” version of the amended claims is as follows:

1. (Amended) A method for driving a liquid crystal display having a matrix of a plurality of pixels with a common electrode and a pixel electrode, comprising steps of:
dividing the plurality of pixels into a plurality of groups, each group comprising a plurality of pixels that are adjacent to each other;
applying a common voltage to the common electrode; and
applying a data voltage of a positive polarity and a negative polarity with respect to the common voltage alternately to the plurality of groups per frame [of a plurality of pixels that are adjacently located],
wherein the polarity of the data voltage applied to [each of] the pixels in [each] the same group is the same.
2. (Amended) The method according to claim 1, wherein the pixel group [is comprised of] comprises three pixels.
3. (Amended) The method according to claim 2, wherein the pixel group [is comprised of] comprises a red pixel, a green pixel, and a blue pixel.
6. (Amended) A liquid crystal display, comprising:
a substrate;
a plurality of gate lines formed on the substrate;

a plurality of data lines insulated from and intersecting the gate lines and transmitting a data voltage; and

a plurality of pixels formed corresponding to respective regions defined by the data lines and the gate lines, the plurality of pixels being divided into a plurality of pixel groups, each pixel group comprising two or more pixels,

wherein a common voltage is applied to the plurality of pixels, and [wherein] polarities of the data voltage with respect to the common voltage are inverted in a unit of a pixel group per frame. [, and wherein the pixel group is comprised of two or more pixels.]

7. (Amended) The LCD according to claim 6, wherein the pixel group [is comprised of] comprises three pixels.

8. (Amended) The LCD according to claim 7, wherein the pixel group [is comprised of] comprises a red pixel, a green pixel, and a blue pixel.

16. (Amended) The method according to claim 1, wherein the pixel group [is comprised of] comprises a column of red pixels, a column of green pixels and a column of blue pixels.

Newly added claims 17-21 are as follows:

17. (Newly Added) A liquid crystal display (LCD), comprising:
a substrate;

a plurality of gate lines formed on the substrate;
a plurality of data lines insulated from and intersecting the gate lines and transmitting a data voltage; and
a plurality of pixels formed corresponding to respective regions defined by the data lines and the gate lines, the plurality of pixels being divided into a plurality of pixel groups, at least one of the pixel groups comprising two or more pixels, wherein the pixel comprises a thin film transistor and a pixel electrode connected to the thin film transistor,
wherein a common voltage is applied to the plurality of pixels, and polarities of the data voltage with respect to the common voltage are inverted in a unit of pixel group per frame.

18. (Newly Added) The LCD of claim 17, wherein adjacent two pixels in row direction have different polarities of the data voltage with respect to the common voltage.

19. (Newly Added) The LCD of claim 17, further comprising a plurality of common electrodes formed on the substrate on which the pixel electrodes are formed.

20. (Newly Added) The LCD of claim 19, wherein the common electrode is parallel to the pixel electrode.

21. (Newly Added) The LCD of claim 20, the common electrode is arranged between the adjacent pixel electrodes.